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A REVIEW OF THE PLATYPEZIDAE OF EASTERN NORTH  
AMERICA.

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THIS family comprises an interesting group of little flies, the larvae of which, as far as known, live in various species of decaying fungi. Most of the species are by no means common and it has taken several years to get sufficient material of the genus *Platypeza* to warrant an attempt at a revision. The species of *Agathomyia* and *Callimya* were reviewed by the writer in 1916 (*Psyche*, vol. 23, p. 27-33). The table of the species of *Agathomyia* has been revised so as to include the three new species here described. In the genus *Callimya* no additions of importance have been obtained and the table is therefore not reprinted in this paper.

The two sexes of a species in the genus *Platypeza* often differ so greatly, both in color and in the form of the hind tarsi, that it is difficult at first to correlate them specifically. The third tarsal joint which is elongated and flattened below in the female, is not thus differentiated in the male and when a study of the tarsi is confined to one sex, the differences are so slight that they are of little value even for separating species. Thus we find that the female of *P. pallipes* is in every way, a typical *Platypeza*. Color is also a feature that has led to some confusion, and which I shall again refer to under the several species here discussed. The most valuable character to depend on is the venation, and when studied carefully and with some discretion, the species can be separated and the sexes correlated. The relative length of the costal and first basal cells, the position of the posterior cross-vein and the form of the anal cell are subject to but little variation specifically. The following notes on the species of *Platypeza* are based on a study of over 250 specimens, many of which were bred from fungi.

*Table of the Species of Platypeza.*

MALES.

- |  |    |
|--|----|
| 1. Hind tarsi greatly enlarged, first and third joints with clubbed appendages |    |
| .....( <i>Calotarsa ornatipes</i> auct.) <i>pallipes</i> Loew.                 |    |
| Hind tarsi somewhat enlarged, without appendages. ....                         | 2. |

2. Abdomen black, the last segment usually grayish . . . . . 3.  
Abdomen black, marked with gray . . . . . 6.
3. Posterior cross-vein less than its length from the hind margin . . . . . 4.  
Posterior cross-vein more than its length from the hind margin . . . . . 5.
4. Costal and first basal cells subequal . . . . . *anthrax* Loew.  
Costal cell much longer than the first basal cell . . . . . *velutina* Loew.
5. Third section of the fourth vein much longer than the fourth, antennae usually yellowish . . . . . *flavicornis* Loew.  
Third and fourth sections of the fourth vein subequal, antennae usually dark brown . . . . . *minorata* Banks.
6. Abdominal bands continuous . . . . . 7.  
Abdominal bands interrupted, costal and first basal cells equal, halteres black . . . . . *banksi*, sp. n.
7. Costal and first basal cells subequal, halteres yellow . . . . . *taeniata* Snow.  
Costal cell longer than the first basal cell, halteres black. *infumata* Haliday.

## FEMALES.

1. Posterior cross-vein less than its length from the hind margin, costal cell much longer than the first basal cell . . . . . 2.  
Posterior cross-vein less than its length from the hind margin, costal and first basal cell subequal . . . . . 3.  
Posterior cross-vein more than its length from the hind margin, costal and first basal cell subequal . . . . . 4.  
Posterior cross-vein about its length from the hind margin, costal cell much longer than the first basal cell, abdomen with broad continuous gray bands, antennae and legs yellow . . . . . *pallipes* Loew.
2. Abdomen opaque black, legs and halteres black . . . . . *obscura* Loew.  
Abdomen with gray spots on the sides of the segments . . . . . *obscura* Loew.  
Abdomen with the gray bands wanting on the second segment and on the third broadly interrupted, thorax with a tridentate black mark, halteres black . . . . . *infumata* Haliday.
3. Abdominal bands not interrupted, legs black . . . . . *anthrax* Loew.  
Abdominal bands not interrupted, legs brown . . . . . *taeniata* Snow.  
Abdominal bands on the second, third and fourth segments broadly interrupted . . . . . *banksi*, sp. n.
4. Third section of the fourth vein much longer than the fourth, antennae yellowish . . . . . *flavicornis* Loew.  
Third and fourth sections of the fourth vein subequal, antennae brownish . . . . . *minorata* Banks.

## PLATYPEZA TAENIATA SNOW.

*P. taeniata* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 214, pl. 17, f. 8 (female only), 1915.

This species is based on a female collected in Illinois. Snow says that it must be near *P. boletina* Fallen of Europe, whose black abdominal bands are widened in their middle. In the male the bands are not widened or but very slightly in a few specimens. In the female, however, this character is extremely variable and in a number of specimens the bands are considerably wider in the middle as figured by Banks. It resembles the female of *P. anthrax* Loew but is distinguished by its yellowish legs and margin of the humeri. I am inclined to think that it may prove to be the same as *P. boletina* Fallen.

The male figured by Banks represents a new species which I am calling *P. banksi*.

In the series before me are twelve males and over thirty females, six males and eleven females of which were taken at the same time—Newton and Brookline (near Hammond's Pond), Massachusetts, September 18, and Center Harbor, New Hampshire, September 10. Specimens have also been collected at Bridgton, Maine, August 25; Liberty, Maine, September 16 (J. A. Cushman); Killington Peak, Vermont, August 26 (C. W. J.); New Bedford, Massachusetts (Dr. Hough); West Gloucester, Massachusetts, October 12, from a fungus *Armillaria mellea* (J. H. Emerton); Chester, Massachusetts, August 6 (C. W. J.); Colebrook, Connecticut, September 10 (W. M. Wheeler).

**Platypeza banski, sp. nov.**

Plate 5, figs. 5, 9, 10.

♂.—Face and antennae black. Thorax brownish black with a wide obscure dorsal stripe, with a narrow median black line; pleura and scutellum brownish black. Abdomen black with wide light-grayish bands on the third, fourth and fifth segments, the band on the third interrupted by about one-third of its length, on the fourth by one-fifth and on the fifth by a narrow dorsal line; the sixth segment entirely grayish. Legs black, bases of the front and middle tibiae and tarsi yellowish; hind tarsi moderately flattened. Halteres black. Wings hyaline, costal and first basal cell of about equal length; the posterior cross-vein less than its length from the hind margin at the end of the fifth vein. Length 3 mm.

♀.—Face light gray, front brown, antennae black, the row of black hairs on the occiput prominent. Thorax brownish with a slightly darker dorsal stripe and conspicuous row of dorso-central hairs; humeri, sides, pleura and scutellum grayish. Abdomen black with bands of grayish white, the first segment with a wide posterior margin, the second with a basal band narrowly interrupted; the third widely interrupted, the fourth narrowly interrupted and the fifth and sixth continuous. Legs brown, the femora blackish. Halteres yellow. Length 2.5 mm.

*Holotype*, Falls Church, Virginia, November 15; and a paratype, Great Falls, Virginia, October 26 (N. Banks), Museum of Comparative Zoölogy, Cambridge, Massachusetts. Allotype and paratypes, Forest Hills, Boston, October 5 (H. M. Parshley); Brookline (Chestnut Hill), August 31, and Auburndale, Massachusetts, September 13; Killington Peak, Vermont, August 28 (C. W. Johnson) in the collection of the Boston Society of Natural History and the author's collection. The males taken near Boston are smaller (2.5 mm.) and the abdominal bands slightly narrower.

**PLATYPEZA ANTHRAX Loew.**

Plate 5, fig. 4.

*P. elongata* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 215, 1915.

Loew's description which is based on a male is somewhat misleading, as the very narrow, reddish posterior margins on the second and third abdominal segments are often obsolete or wanting. The female agrees well with the description of *P. fasciata* Fabr. of Europe and the male and female as described and figured

by Verrall (*British Flies*, vol. 8, p. 49, 1901 only strengthen the supposition that this may prove to be the same species. In the absence of European material, however, I will still retain the name applied to the American form.

Some forty males and thirty-five females are before me and of these twenty-two males and twenty-four females were taken at the same time and place—Newton and Brookline (woods near Hammond's Pond), September 18, and Auburndale, Massachusetts, September 4, 22; Center Harbor, New Hampshire, September 11; and Mt. Desert, Maine, September 7 (C. W. Johnson); on a schooner five miles off the Isles of Shoals, September 5, and Bolton Mt., Vermont, August 30–September 10 (Owen Bryant); Orono, Maine, August 12, bred from fungus (Dr. O. A. Johannsen). One male from Mt. Desert has the halteres yellow as in the female. The species has been recorded from New York, Pennsylvania and Virginia.

PLATYPEZA INFUMATA Haliday.

Plate 5, fig. 11.

*P. infumata* Haliday, *Ann. Mag. Nat. Hist.*, ser. 1, vol. 2, p. 184, 1838.

I have before me some sixteen specimens that agree with the original description and the description and figures given by Verrall. The female is readily recognized by the disk of the thorax being black with a tridentate margin behind. The lateral spot on the third abdominal segment varies in size, in some specimens reaching the posterior margin, but the majority are typical. The males that undoubtedly belong to this species have an indistinct band at the base of the third abdominal segment in addition to those on the fourth and fifth segments; the base of the sixth is also brown, with a grayish-white tip, bearing a row of yellow bristle-like hairs.

It has a wide distribution, being represented from the following localities:—Mt. Washington carriage road, at about 2,500 feet, July 24 and 28, and "Glen" (Osgood Trail), New Hampshire, July 15, 1915; Hampton, New Hampshire, May 15 (S. A. Shaw); Waltham, Norwood (Ellis Station), May 24, and Chester, Massachusetts, August 6, 1914; Buttonwoods, Rhode Island, June 18; Pottstown, Pennsylvania, June 15 (C. W. Johnson); East Aurora, Colden, and Gowanda, New York, May 18–June 7; Berkeley, California, May 16 (M. C. Van Duzee).

PLATYPEZA OBSCURA Loew.

The type, a female from Pennsylvania, is the only specimen I have seen of this species, although it has been recorded from Mt. Washington, New Hampshire, by Mrs. A. T. Slosson. It has the venation of *P. velutina*, but the abdomen is marked with small whitish triangles at the anterior angle of each segment; legs and halteres yellowish.



## PLATYPEZA FLAVICORNIS Loew.

*P. submacula* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 214, 1915.

*P. mediana* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 215, 1915.

The typical form is readily separated from the following species by the third section of the fourth vein being noticeably longer than the fourth section,—almost two-thirds in some specimens. However, this difference is often much less and to define the limits of “subequal” becomes quite difficult, especially in the females, but with discretion it can be used to separate the two forms. In the females the gray lateral spots on the abdominal segments are usually much smaller than in *P. minorata* Banks. I have been unable to use the hind tarsi in defining the species and the antennae vary from yellow to dark brown in both.

In the large series before me of those species in which the males are an opaque velvety black, there is apt to be more or less discoloration of the abdomen, either owing to the specimens coming in contact with moisture in the cyanide bottle or by being injured during capture, and the fluids of the abdomen spreading over it, gives it a somewhat grayish-black color, and in some cases shining black. Again, we have the grayish spots thus formed apparently disappearing in time and the specimen again assuming a uniform velvety black. This is what has undoubtedly occurred in the case of *P. submaculata* Banks. In the type the three spots described and figured have almost disappeared, there being only the faintest trace of one, and that has not the original shape or exact position. In *P. mediana* Banks the abdomen is grayish somewhat shining and the irregularity of the velvety-black spots would also indicate that they were accidental. I have a similar specimen with the venation of *P. minorata*. A specimen of *P. velutina* also has as highly polished an abdomen as that of the type of *P. nitida* Banks. It has undoubtedly been caused by the abdomen being injured.

This species has been bred from mushrooms (*Agaricus campestris*) by Professor Roland Thaxter at Belmont, Massachusetts. It has also been collected at Franconia, New Hampshire (Mrs. A. T. Slosson); Brookline, Auburndale, and Chester, Massachusetts, August 13–September 24; Riverton, New Jersey, and Delaware Co., Pennsylvania, August 28 and 29 (C. W. Johnson); Colden, Elma, East Aurora and Niagara Falls, New York, August 9–September 20 (M. C. Van Duzee); Falls Church, Virginia, August 24–September 24 (N. Banks); Ridgeway, Ontario, August 12 (M. C. Van Duzee).

## PLATYPEZA MINORATA Banks.

Plate 5, fig. 1.

*P. minorata* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 214, 1915.

*P. nitida* Banks, Journ. N. Y. Ent. Soc., vol. 23, p. 215, 1915.

The type of this species is from Falls Church, Virginia. It is closely related to *P. flavicornis* and can only be separated by the

characters given in the table. As stated under *P. flavicornis* I can only consider the polished abdomen of *P. nitida* as accidental. The type of *P. nitida* has the base of the abdomen opaque.

This species has been bred by the writer from mushrooms (*Agaricus campestris*), Newton, Massachusetts, September 17-26, and by Mr. C. A. Frost, Framingham, Massachusetts, October 2.

#### Platypezoides, gen. nov.

This genus has in part the characteristics of *Callimyia*: short third antennal joint and the same-shaped hind metatarsi. The wing venation, however, is nearer that of *Platypeza*. The fourth vein branches near the posterior cross-vein, all the veins reaching the posterior margin; the second and third posterior cells are about equal. The eyes are divided by a transverse groove on a line with the base of the antennae. Type, the following species.

#### Platypezoides diversa, sp. nov.

Plate 5, fig. 6-8.

♂, ♀.—Face and antennae black, proboscis dark brown, the cheeks and occiput with numerous prominent hairs, the facets of the lower portion of the eyes minute. Thorax and scutellum black, the latter with four marginal bristles. Abdomen black, venter brownish. Legs brown, the hind femora and tibiae somewhat enlarged and the hind metatarsi much enlarged, about twice as wide as long and as long as all the other joints of the tarsi together. In the female, the hind femora, tibiae and metatarsi are not enlarged. Halteres black, calypters with whitish hairs. Wings brownish, with a darker oblong clouding at the end of the first vein; the costal cell is about one-third longer than the first basal cell; anal cell acute and as long as the first basal cell. Length 3.5 mm.

*Holotype*, Mt. Washington, New Hampshire (Mrs. A. T. Slosson); allotype and three paratypes, Center Harbor, New Hampshire, September 11, 1914 (one 2.5 mm. long) and Bar Harbor ("Witch Hole Pond"), Maine, September 11, 1922 (C. W. Johnson); in the collection of the Boston Society of Natural History. One paratype, Niagara Falls, New York, September 9, 1910 (M. C. Van Duzee) in the author's collection.

#### Table of the Species of *Agathomyia*.

##### MALES.

- |  |                             |
|--|-----------------------------|
| 1. Thorax and abdomen largely yellow. . . . .  | 2.                          |
| Thorax and abdomen largely black. . . . .  | 3.                          |
| 2. The last two segments of the abdomen and halteres black. . . . .                        | <i>perplexa</i> Johnson.    |
| The last two segments of the abdomen, pleura and metanotum black, halteres yellow. . . . . | <i>dubia</i> Johnson.       |
| 3. Abdomen broadly banded with yellow. . . . .   | 4.                          |
| Abdomen not banded with yellow. . . . .  | 7.                          |
| 4. Scutellum yellow. . . . .   | 5.                          |
| Scutellum black. . . . .   | 6.                          |
| 5. Thorax opaque black (2 mm.) . . . . .   | <i>pulchella</i> Johnson.   |
| Thorax opaque black, with a large square of yellow in front of the scutellum . . . . .     | <i>brooksi</i> , sp. nov.   |
| Thorax shiny black, subcostal cell yellowish . . . . .                                     | <i>monticola</i> , sp. nov. |

6. Thorax dull black, with three narrow pruinose lines, halteres yellow . . . . .  
 . . . . . *cushmani* Johnson.  
 Thorax dark brown, with a dorsal line and area of black, halteres brown  
 . . . . . *vanduzeei* Johnson.  
 Thorax velvety black, halteres black . . . . . *canadensis*, sp. nov.
7. Thorax and abdomen both maculated with opalescent greenish white,  
 halteres black . . . . . *notata* Loew.  
 Thorax only maculated with greenish white, halteres yellow . *divergens* Loew.  
 Thorax and abdomen without maculation, knobs of the halteres black  
 . . . . . *talpula* Loew.

## FEMALES.

1. Thorax and abdomen yellow . . . . . 2.  
 Thorax and abdomen partly black . . . . . 3.  
 Thorax and abdomen partly cinereous . . . . . 5.
2. Head black, antennae entirely yellow . . . . . *fulva* Johnson.  
 Head, third joint of the antennae and spots on the sides of the last two  
 abdominal segments black . . . . . *perplexa* Johnson.
3. Abdomen broadly banded with yellow, cinereous or yellowish in front of the  
 yellow scutellum, the black of the pronotum usually vittate . . . . .  
 . . . . . *pulchella* Johnson.  
 Abdomen not banded with yellow . . . . . 4.
4. Thorax, front and abdomen marked with an opalescent greenish white,  
 halteres black . . . . . *notata* Loew.  
 Thorax only marked with greenish white, halteres yellow . . *divergens* Loew.  
 Thorax and abdomen entirely black, knobs of the halteres black . . . . .  
 . . . . . *talpula* Loew.
5. Abdomen cinereous on a yellow ground, with broad black dorsal triangles on  
 the third and fourth segments, two first joints of the antennae yellow  
 . . . . . *vanduzeei* Johnson.  
 Abdomen cinereous on a black ground, with black band on the third and  
 fourth and a spot on the fifth segment, antennae entirely black . . . . .  
 . . . . . *obscura* Johnson.

*Agathomyia brooksi*, sp. nov.

♂.—Front and face dull black, proboscis yellow, antennae black. Thorax velvety black, with a large almost square yellow mark in front of the scutellum extending almost to the middle of the thorax, with the anterior margin tridentate; there is also a small obscure yellow spot above the base of the wing. Pleura dull black, scutellum bright yellow, with four black marginal bristles. Abdomen with the first three segments yellow, the hind legs brown, the hind femora and tibiae slightly enlarged with a row of fine hairs above, the metatarsi about twice as long as wide. Halteres black. Wings hyaline. Length 2.5 mm.

One specimen, Manomet, Massachusetts, May 31, 1919. Obtained in sweeping for small insects, by Mr. Winthrop Sprague Brooks. *Type* in the collection of the Boston Society of Natural History.

*Agathomyia monticola*, sp. nov.

♂.—Head and antennae black. Thorax black, shining, pleura dull black, scutellum yellow, metanotum black. The first three segments of the abdomen yellow, base of the first segment blackish, segments four to six black, shining. Legs brown, the hind femora and tibiae but slightly enlarged, with rows of bristle-like hairs above; hind metatarsi about three times as long as wide. Halteres black. Wings hyaline, with a slight yellow tinge, subcostal cell yellow.

One specimen, Mt. Washington carriage road, between the one- and two-mile post, elevation about 2,500 feet, July 24, 1915 (C. W. Johnson). *Type* in the collection of the Boston Society of Natural History.

*Agathomyia canadensis*, sp. nov.

♂.—Face dull black, proboscis yellow, antennae black. Thorax and scutellum velvety black, base of the scutellum and a small spot in front shining black, pleura dull black. Abdomen with the first three segments yellow, the third with a black dorsal spot at the posterior margin, the other segments velvety black. Front and middle legs yellow, hind legs dark brown, the hind femora and tibiae enlarged, with a row of bristle-like hairs above; the hind metatarsi about twice as long as wide. Halteres black. Wings hyaline. Length 3 mm.

One specimen, Norway Point, Lake of Bays, Ontario, Canada, August 1, 1919 (Dr. J. McDunnough). *Type* in the collection of the National Museum, Ottawa, Canada.

EXPLANATION OF PLATE 5.

- Fig. 1. Wing of *Platypeza minorata* Banks.
- Fig. 2. Wing of *Platypeza flavicornis* Loew.
- Fig. 3. Wing of *Platypeza velutina* Loew.
- Fig. 4. Wing of *Platypeza anthrax* Loew.
- Fig. 5. Wing of *Platypeza banksi*, sp. nov.
- Fig. 6. Wing of *Platypezoides diversa*, sp. nov.
- Fig. 7. Hind leg of *Platypezoides diversa*, sp. nov. (male).
- Fig. 8. Hind leg of *Platypezoides diversa*, sp. nov. (female).
- Fig. 9. Abdomen of *Platypeza banksi*, sp. nov. (male).
- Fig. 10. Abdomen of *Platypeza banksi*, sp. nov. (female).
- Fig. 11. Thorax and abdomen of *Platypeza infumata* Haliday (female).